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ABSTRACT

The study examined the effects of educational treatment on 62 children (5 to 16-years-old) in a care unit for ambulant, trainable, low-moderate, and severely mentally handicapped children. Educational programing was provided in four areas: gross motor, motor perceptual, language, and social training. Results showed that the experimental children made significantly greater progress in two of the three areas of development (mental age and social age) than did their controls over the program's 2 years. In the third area, language, gains in favor of the experimental groups in expressive language did not reach significance level, and, unexpectedly, the controls showed greater actual, though again non-significant gains in receptive language. (SBH)

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A CONTROLLED EXPERIMENT IN THE EDUCATION OF THE

SEVERELY SUBNORMAL

(WORLD CONGRESS ON FUTURE SPECIAL EDUCATION, COUNCIL FOR EXCEPTIONAL CHILDREN, STIRLING 1978)

Panel Session - 1.30 to 3.30, Tuesday, June, 27th

"The Care, Education and Treatment of the Handicapped"

Paper: 15 minutes approximately

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INTRODUCTION:

As far back as 1954, all of 24 years ago, an Expert Committee of the World Health Organisation (Technical Report Series No. 75) stated, "Unless a child is so severely subnormal as to be completely incapable, his education should be the responsibility of the public education authority even though the child is, in fact, in a hospital or medical institution". This statement is quoted (page 87) in a Report by an Irish Government-appointed Commission of Inquiry on Mental Handicap produced in 1965 which set guidelines and made many valuable recommendations on the development of services for years to come.

However, neither at that time nor since has any provision been made for the education of mentally handicapped children in Ireland who fall below mild or moderate levels. Such children who are termed 'moderate trainable' or 'low-moderate' and 'severely handicapped'-in general those with I.Q.'s under 35 - are provided for in special care by the Department of Health and are, by implication, regarded as 'not capable of benefitting from education'.

The question of educability has always been central to the treatment of the mentally handicapped. There was a time, perhaps till the turn of this century, when the educability of even mild degrees of mental handicap was queried. Even in more recent times the same question caused much soul searching in regard to the moderately handicapped, as evidenced, for example, in the reviews of research, presented by Charney. 1963 and Kirk, 1964, into Public School Programs for T.M.R. children in the U.S. in the late 1950's and early 1960's. It is only more recently still that such children have

been brought under the educational umbrella in the U.K. by the requirements of the Education (Handicapped Children) Act 1970.

Indeed, world trends in the present day are towards universal educational provision for mentally handicapped children, no matter how severe or even profound the handicap. It must be admitted, however, that many of the administrative changes in this direction have been influenced more by moral and legal considerations of the rights of the individual, as, for example, in the Pennsylvania case reported by Lippman and Goldberg, 1973, than by any real breakthrough in educational technology or expertise in making such provision viable or effective.

Perhaps in Ireland we are more cautious, although to do justice to administrative policy on this question, I should point out that since 1960, and quite in step with the most advanced policies throughout the world at that time, educational provision for moderately mentally handicapped children has been fully supported by the Irish Government Department of Education.

Nevertheless, what gave rise to this experiment was the fact that a small but significant section of the retarded population appeared to be so far removed from being 'so severly subnormal as to be completely incapable', but yet were totally excluded from educational provision and assigned to special care. The study focuses specifically, then, on a range of children, low-moderate and severely mentally handicapped, who were both ambulant and trainable, but whose main needs appeared to be educational in nature, although their care requirements were still substantial. The experiment was established in September, 1974 and completed in July, 1976, within the services of Cork Polio and General After-Care Association, Cork, Ireland.

Hypotheses were formulated to the effect that:-

(i) it would be possible to provide educational treatment to these children and that the provision would survive over a sufficient period of time to test its workability. (This hypothesis would cover such questions as, "Could the teacher cope?"; "Would the children be manageable?"; "Would they respond as a group, or only to individual attention?"),

(ii) educational treatment would result in greater developmental gains than those occurring without treatment,

(iii) the benefits of treatment would show in a full cross-section, by age and ability, of these children.

Method:

From a population of 62 children in Tracton House, a care unit for ambulant, trainable, low-moderate and severely mentally handicapped children (I.Q. range 15 to 35, S.Q. range 15 to 40, and age range 5 to 16 years) two experimental and two control groups, 10 children per group, were randomly selected, the younger group aged 5 to 10 years, the older group aged 10 to 16 years.

Table 1 (Appendix 1) shows the younger experimental and control groups equated for mean age, I.Q., S.Q., and Language Ages, Receptive and Expressive, the older experimental and control groups similarly equated and, the combined experimental and controls similarly equated.

Despite random selection there is a tendency for the experimental children to show up slightly higher on most measures, but the differences are not statistically significant except where the older and the combined experimental groups show up as slightly in advance in receptive language.

The experimental groups were provided with educational treatment on the basis of 1½ hours per day in classroom with a teacher experienced in the education of the mildly and moderately handicapped, and two teachers' aides. The younger group attended a.m., the older p.m., and the timetable allowed two non-contact hours per day to staff for preparation of materials, recording, study and programme development.

An educational programme deriving mainly from Kephart (1971), but gleaning also from a number of U.S. published programmes from the T.M.R. as well as Montessori Method, was provided in four main areas:

Gross Motor Training: Exercises included rolling (Slide 1), somersaulting (Slide 2), creeping (Slide 3), balance board walking (Slide 4), and various throwing and catching games (Slide 5) to develop precision in spatial location.

Motor Perceptual Training: Proceeding from training in visual acuity (e.g. visual following Slide 6) through manipulation (Slide 7) to perceptual judgement of form (Slide 8), size (Slide 9) or form and colour (Slide 10).

Language Training: Receptive Language training occurred mainly in group sessions (Slide 11), Expressive Language training was done mainly in individual sessions by the teacher, concentrating on language production exercises such as blowing (Slide 12), sucking and swallowing (Slide 13), encouraging simple vocalisation (Slide 14) and articulation exercises (Slide 15).

Social Training: This included the usual areas of self-care - feeding (Slide 16), dressing (Slide 17), toilet and washing (Slide 18), and also dental hygiene (Slide 19) and general hygiene (Slide 20).

Model lessons were provided by the teacher on a group basis in the classroom, but the main training was done individually by the aides under the teacher's direction in the toilet/bathroom off the classroom.

Free play was a regular part of the programme, mainly centred around sand and water play and music and movement. (Slide 21.)

The contract situation for the control groups was the regular care-unit routine which also applied to the experimental groups at times other than those for classroom attendance. Here the main emphasis was on custodial care with training in self-care incidental to the care routine, involving a fair measure of verbal interaction between staff and children.

Structured programmes were not operative during the two years of the experiment except for the last six months, when a programme in areas similar in designation to those of the educational programme was provided on a fairly regular basis for 3 hours per day.

Results:

The results have been very encouraging. To start with, the educational provision survived the 2 year trial period, and the task proved eminently possible. Some of the difficulties anticipated were met in the first few months but with careful conditioning in basic classroom discipline and routine, most of them were phased out except with one or two individuals whose disturbance it was possible to contain in the ongoing situation. It was noteworthy that the educational programme itself became the vehicle for maintaining amenability once the initial habits of directed behaviour had been established. Thus, the teacher did cope, the children were manageable and they did respond in some teaching situations as a group.

Keeping in mind the hazards of formal testing and the limitations in reliability of tests at these levels, we now look at the measured effects of educational intervention. Table 2 (Appendix 2) shows that the experimental children (combining both younger and older groups) made significantly greater progress in two of the three areas of development, Mental Age and Social Age, than did their controls over the two years. In the third area, Language, gains in favour of the experiemental groups in Expressive Language did not reach significance level, and, unexpectedly, the controls showed greater actual, though again non-significant gains in Receptive Language. This is the same area where experimental were significantly in advance of controls before treatment began (Table 1). However, it is not within the scope of this brief presentation to explore reasons for this atypical finding, the most likely one being related to test suitability. The fact remains that in two important areas out of three, experimental groups made approximately twice the progress made by controls.

Table 3 (Appendix 3) shows that younger and older groups benefitted about equally from treatment except in the measure of Social Age where the older group showed significantly greater benefit. Similarly, Table 4 (Appendix 4) shows that the less able and more able selected from both younger and older groups benefitted equally from treatment.

It is interesting to contrast these findings with those reviewed by Charney in 1963 regarding T.M.R. children in the U.S. where, typically, indications were that children with I.Q.'s below 25 (i.e. the range of broadly corresponding ability to those in the present study) tended to be dropped from programmes, and that children with I.Q.'s in the 40 to 50 range benefitted most from educational programmes provided in Public Schools.

The progress made in response to treatment generally followed a pattern of rapid gain in the first year, levelling off but maintained in the second. Figures I and II (Appendices 5 and 6) show this trend clearly.

This is not an unusual finding in educational intervention and could indicate that either compensation for prior deprivation or an "artificial boost" or both took place, the effects reducing over time.

As Kirk stated in the situation in 1958 (p. 213) "although the upper limits of development for an individual are genetically or organically determined, the functional level or rate of development may be accelerated or depressed within the limits set by organism".

To examine this question, i.e. whether a removal of 'depression' of rate or a positive acceleration was effected by intervention, more closely, a retrospective study into the records of these children was carried out. The findings proved striking as shown in Figure 111 (Appendix 7).

Figure 111 shows a continued decrease in mean I.Q. from the time of admission to the point of intervention in both experimentals and controls, sharply arrested in the experimental groups with educational intervention, but continuing the same trend in controls during the experimental period. Figure IV (Appendix 8) shows similar trends in mean S.Q. A closer analysis of this finding showed that the longer the stay the greater the overall decrease, but the younger the age the sharper the decrease, the older the more gradual this became over time.

There seems little doubt from the evidence in Figures 111 and IV, but that the effects of educational intervention in this case were to compensate for prior deprivation. The differential effects at younger

and older ages appear to be in line with the more general finding of Clarke & Clarke in their 1954 and 1959 studies of the effects of deprivation, where they conclude that these effects become more diluted over time, with a tendency towards spontaneous recovery from the effects of early adversity.

Conclusion:

In conclusion, while acknowledging the limited significance of a single such study, the need for further research into teacher and programme variables, and into the effects of education in various special care situations, in this study a section of the severely subnormal population not hitherto provided with education in Ireland, carefully circumscribed as to ability range, and only one remove below a range already provided with such education is clearly shown to be educable and capable of benefitting from education.

The implications for administrative change in Ireland for the future seem clear. Such hoped for changes have already been achieved elsewhere, incidentally, more on the basis of advocating what should be done rather than what can be done. Hopefully, this demonstration of what can be done will also help somewhat to bring about the real changes in provision which administrative changes now give promise of throughout the world.

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APPENDIX

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Appendix 1

Table 1

Comparison between Experimental and Control Groups on Pre-Experimental Testing

Groups	Mean Chronological Age	Mean I.Q.	Mean S.Q.	Mean L.A. (Reynell) Receptive	Mean L.A. (Reynell) Expressive
Younger					
E_1	97 mths	23.2	23.6	18.0 mths	14.6 mths
C_2	94 mths	18.3	23.3*	13.0 mths	10.0 mths
Mann-Whitney U Test Two-tailed	N.S. P>.10	N.S P>.10	N.S. P>.10	N.S. P>.10	N.S. P>.10
Older					
E_2	148 mths	21.4	30.4	30.7 mths	24.6 mths
C_2	145 mths	21.3	27.7	20.3 mths	21.2 mths
Mann-Whitney U Test Two-tailed	N.S. P>.10	N.S. P>.10	N.S. P>.10	Sig. P<.10	N.S. P>.10
Combined					
$E_1 + E_2$	122.5 mths	22.3	27	24 mths	19.6 mths
$C_1 + C_2$	119.5 mths	19.5	25.4	16.8 mths	16.0 mths
Mann-Whitney U Tests Two-tailed	N.S. P>.10	N.S. P>.10	N.S. P>.10	Sig. P<.10	N.S. P>.10

Appendix 2

Table 2

Group	Mental Age Gain in months of M.A.	Social Age Gain in months of S.A.	Language Age Gain in months of L.A. Receptive	Language Age Gain in months of L.A. Expressive
Experimental ($E_1 + E_2$)	6.68	15.96	4.26	4.1
($C_1 + C_2$)	3.72	7.75	4.89	1.32
Mann-Whitney U Test Two-tailed	Significant P<.01	Significant P<.001	Not Significant P>.05	Not Significant P>.05

Appendix 3

Table 3

Group	Mental Age Gain in months of M.A.	Social Age Gain in months of S. A.	Language Age Gain in months of L.A. Receptive	Language Age Gain in months of L. A. Expressive
Younger (E_1)	6.36	11.3	4.1	2.5
Older (E_2)	7.0	20.62	4.44	5.88
Mann-Whitney U Test One-tailed	Not Significant P>.05	Significant P<.01	Not Significant P>.05	Not Significant P>.05

Appendix 4

Table 4

Group	Mental Age Gain in months of M.A.	Social Age Gain in months of S.A.	Language Age Gain in months of L.A. Receptive	Language Age Gain in months of L.A. Expressive
Higher Ability	7.36	18.86	4.5	4.8
Lower Ability	6.0	13.06	2.88	3.22
Mann-Whitney U Test One-tailed	Not Significant P>.05	Not Significant P>.05	Not Significant P>.05	Not Significant P>.05

Appendices 5 and 6

Experimental Groups Combined ($E_1 + E_2$) and Combined Controls ($C_1 + C_2$)

Age Measures in months, Yr. 0 (Pre-experimental), Yr. I and Yr. II.

Fig. 1.

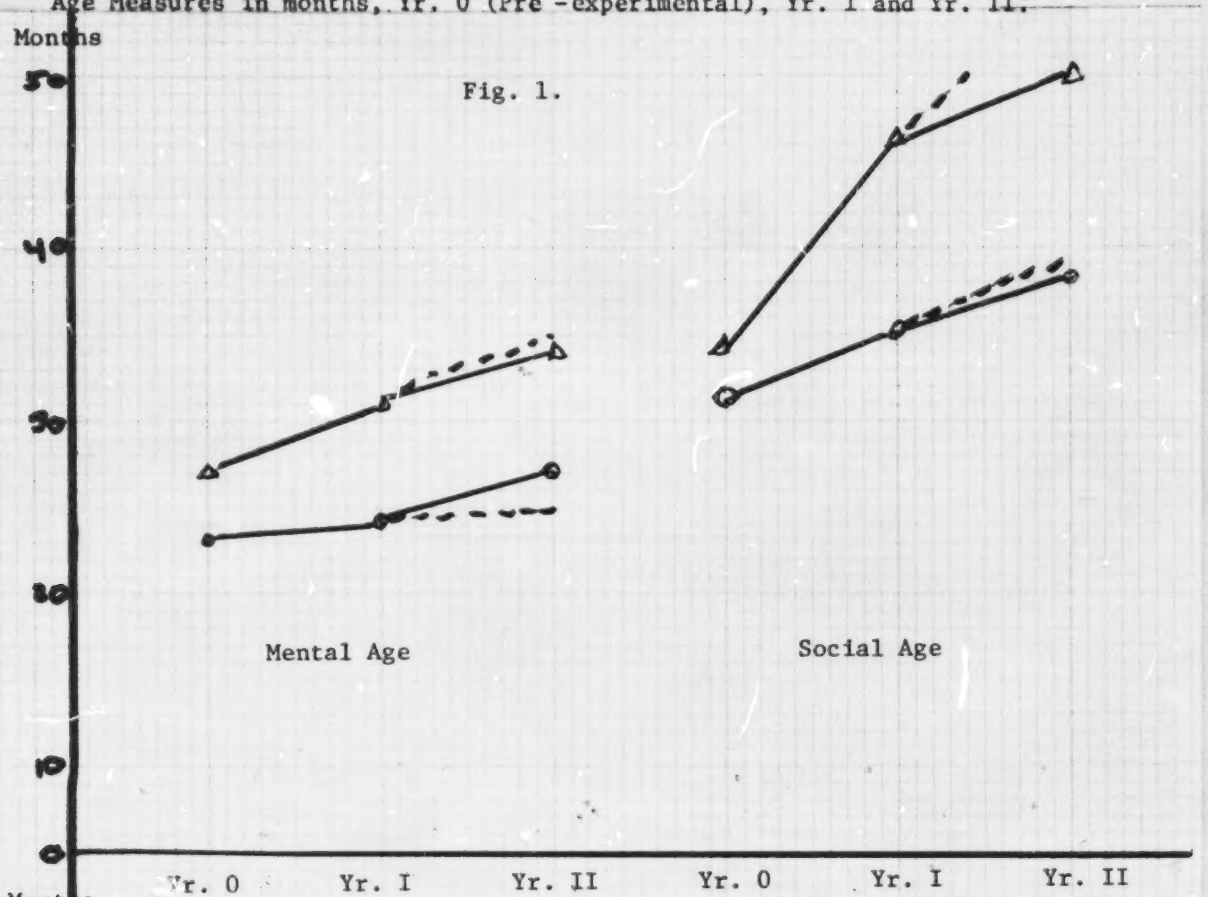
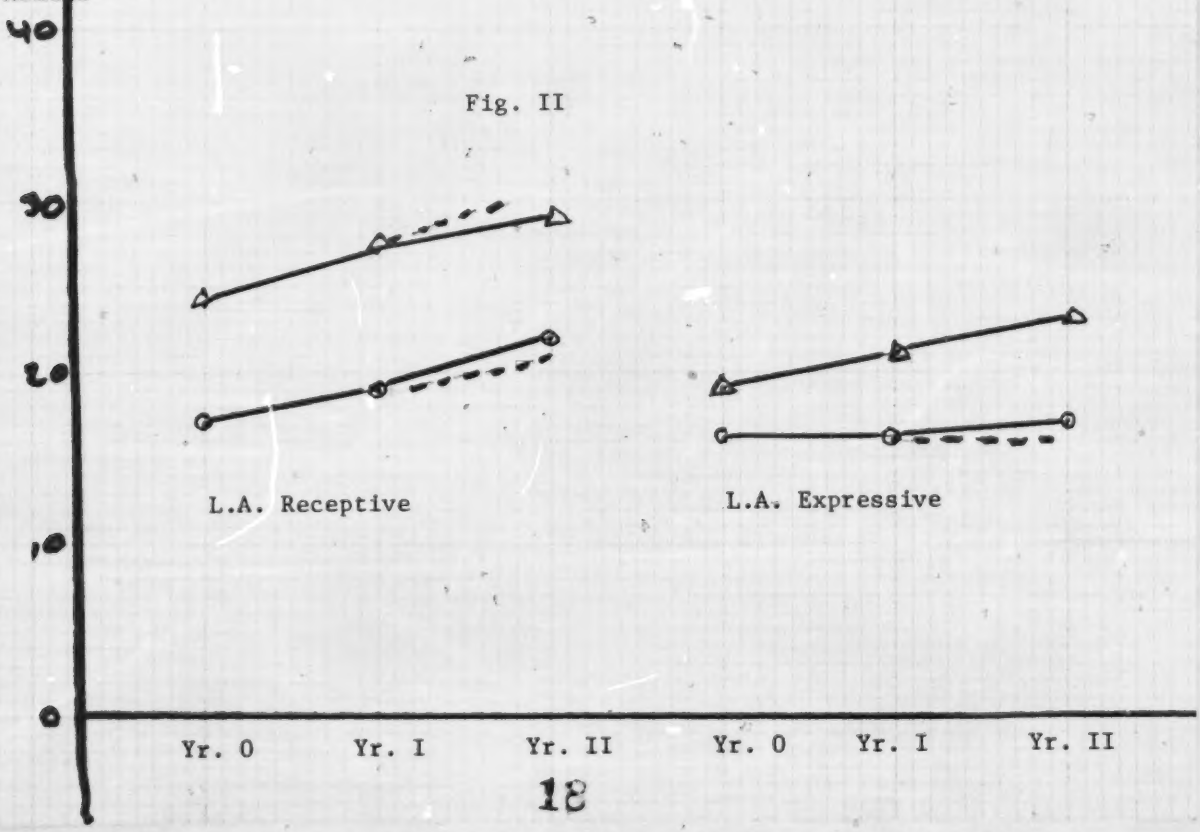


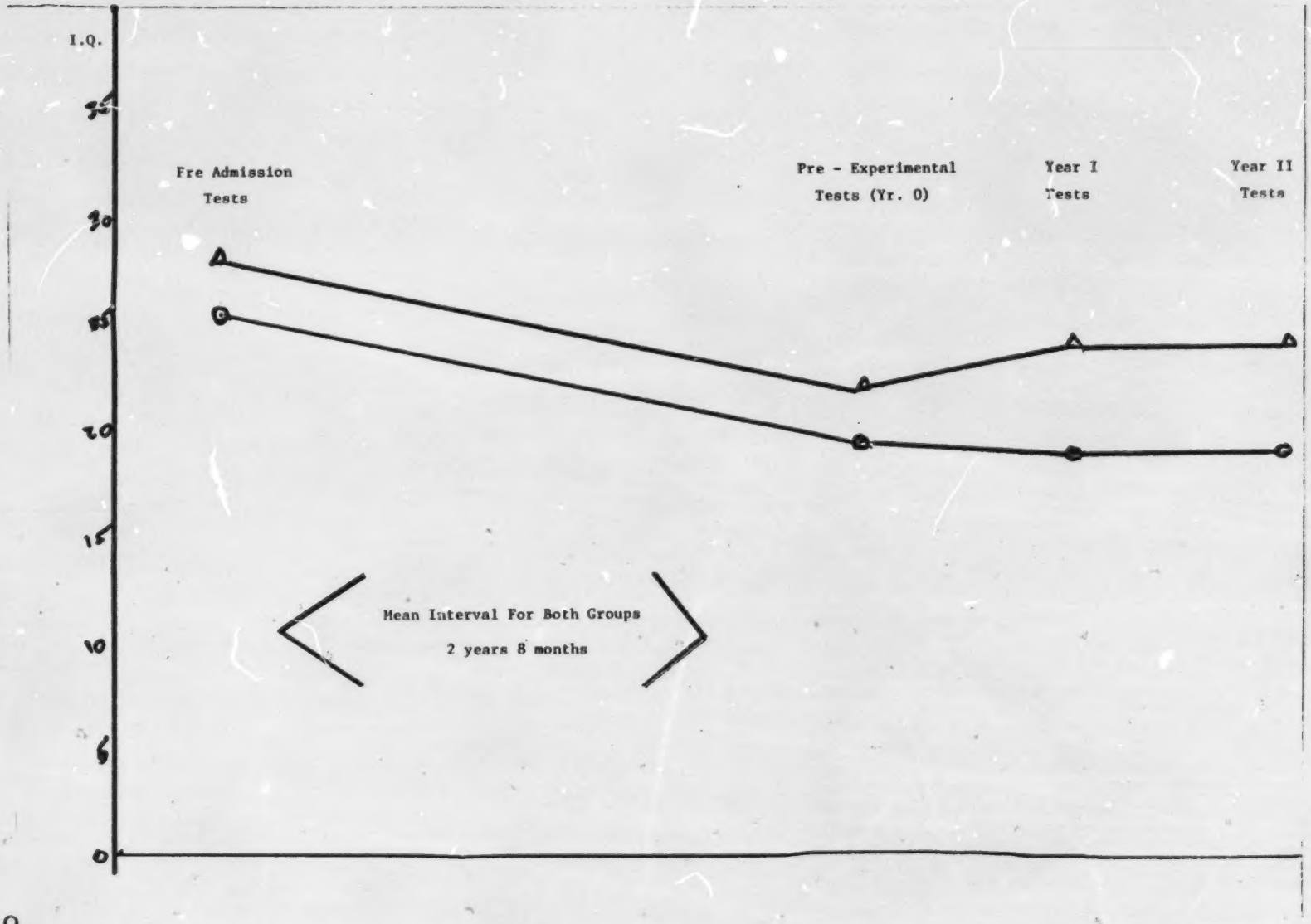
Fig. II



KEY: Experimental Δ----Δ---Δ Control 0----0----0

Fig. III

Changes in Mean I.Q., Combined Experimental Groups ($E_1 + E_2$) and Combined Controls ($C_1 + C_2$)



KEY: Experimental Δ _____ Δ _____ Δ Control O _____ O _____

Fig. IV

Changes in Mean S.Q., Combined Experimental Groups ($E_1 + E_2$) and Combined Controls ($C_1 + C_2$)